

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1 -5. (Cancelled)

6. (Currently amended) The method of claim 31 further comprising:
providing a cursor associated with the on any type of query executed.

7. (Cancelled)

8. (Currently amended) The method of claim 31 further comprising:
[[the]] marshaling [[of]] data between the runtime environment and the database management system on unmanaged layer and a managed layer.

9. (Currently amended) The method of claim 31, further comprising:
running wherein an application operation selected from a group of operations comprising functions, procedures, and triggers is executed directly in the database management system [[DBMS]].

10.-15. (Cancelled)

16. (Currently amended) The system of claim 37, wherein the memory further comprises instructions that upon execution cause the computer system to:
provide further comprising a subsystem for providing a cursor for the on any type of query executed.

17. (Cancelled)

18. (Currently amended) The system of claim 37, wherein the memory further comprises instructions that upon execution cause the computer system to:

marshal further comprising a subsystem for the marshaling of data between the runtime environment and the database management system an unmanaged layer and a managed layer.

19. (Currently amended) The system of claim 37, wherein the memory further comprises instructions that upon execution cause the computer system to:

run further comprising a subsystem for an application operation selected from a group of operations comprising functions, procedures, and triggers encoded in the native query language to be executed directly in the [[DBMS]] database management system.

20.-25. (Canceled)

26. (Currently amended) The computer-readable storage medium instructions of claim 43 further comprising instructions that upon execution cause the computer system to:

for providing provide a cursor on any type of query executed.

27. (Canceled)

28. (Currently amended) The computer-readable storage medium instructions of claim 43 further comprising instructions that upon execution cause the computer system to:

for the marshaling of marshal data between the runtime environment and the database management system an unmanaged layer and a managed layer.

29. (Currently amended) The computer-readable storage medium instructions of claim 43 further comprising instructions that upon execution cause the computer system to:

run [[for]] an application operation selected from a group of operations comprising functions, procedures, and triggers encoded in the native query language to be executed directly in the database management system [[DBMS]].

30. (Canceled)

31. (Currently amended) A computer-implemented method, for executing .NET managed code in a database management system (DBMS) having a database server, the method comprising:

running, on a computer system, a database management system, the database management system configured to process queries generated in a native query language for the database management system;

running, on the computer system, a runtime environment configured to manage execution of intermediate language code;

establishing a connection to a client, the client associated with a set of database access privileges;

receiving, from a client, a query that invokes intermediate language code;

executing instructions from a memory in the database server invoking .NET managed code;

compiling by the runtime environment during the runtime of the database management system, the intermediate language code into an expression encoded in the native query language;

generating a context object including invoking an invocation context in the database server, wherein the invocation context is based on at least a context class, wherein the context class includes information comprising the set of database access privileges, a connection context of [[a]] the client, a command context of the client, a transaction context of the client, a pipe context of the client, and a trigger context of the client;

separating the .NET managed code into an immutable part and a mutable part;

exposing the context [[class]] object to the database management system server through the utilization of an in-process provider, wherein the in-process provider keeps track of unmanaged data obtained from the database management system that is referenced from the runtime environment a managed space and prevents access of the database management data unmanaged data outside a runtime environment managed execution frame;

executing the expression encoded in the native query language based on the context object the .NET managed code in the database server based on the invocation context and the separation into immutable and mutable parts; and

storing information indicative of a result of the query for the context class in said memory.

32. – 35. (Canceled)

36. (Currently amended) The method of claim 31, wherein the in-process provider supports more than one pending executing command for [[a]] the connection [[of]] to the client.

37. (Currently amended) A system for executing application code in a database management system (DBMS) comprising a processor and a memory, the system comprising:

a processor; and

a memory coupled to the processor, the memory including instructions stored therein that upon execution cause the processor to:

at least one processor comprising:

run a database management system, the database management system configured to process queries generated in a native query language;

run a runtime environment configured to manage execution of intermediate language code;

establishing a connection to a client, the client associated with a set of database access privileges;

receive a query that invokes intermediate language code from the client;

compile by the runtime environment, the intermediate language code into an expression encoded in the native query language;

generate a context object including a subsystem for invoking .NET managed code and an invocation context in the database server, wherein the invocation context is based on at least a context class, wherein the context class contains information comprising the

set of database access privileges, a connection context of [[a]] the client, a command context of the client, a transaction context of the client, a pipe context of the client, and a trigger context of the client;

a subsystem for separating the .NET managed code into an immutable part and a mutable part;

expose a subsystem for exposing the context [[class]] object to the database management system [[server]] through the utilization of an in-process provider, wherein the in-process provider keeps track of unmanaged data obtained from the database management system that is referenced from the runtime environment a managed space and prevents access of the database management data unmanaged data outside a managed runtime environment execution frame;

a subsystem for executing the .NET managed code in the database server execute the expression encoded in the native query language based on the invocation context object and the separation into immutable and mutable parts, wherein the code is executed under the client's connection context; and

a computing memory communicatively coupled to the processor, the computing memory operable to store information for the client's connection context.

38. (Currently amended) The system of claim 37, wherein the context object invocation context further comprises:

a command with a state execution context;

the transaction context of [[a]] the client associated with a command;

a path through which requests and results may be sent or received between the client and the database management system server; and

a forward-only cursor on top of statement execution results.

39. (Canceled)

40. (Canceled)

41. (Cancelled)

42. (Previously presented) The system of claim 37, wherein the in-process provider supports for more than one pending executing command for a connection of the client.

43. (Currently amended) A computer-readable storage medium comprising computer-readable instructions stored thereon that upon execution by a processor of a computer system cause the computer system to for executing application code in a database management system (DBMS), the computer readable instructions comprising instructions for:
run a database management system, the database management system configured to process queries generated in a native query language;
run a runtime environment configured to manage execution of intermediate language code; establishing a connection to a client, the client associated with a set of database access privileges;
receive a query that invokes intermediate language code from the client;
compile by the runtime environment, the intermediate language code into an expression encoded in the native query language;
receiving application code, rewritten as .NET managed code, from an application;
generate a context object including invoking .NET managed code and an invocation context in the database server, wherein the invocation context is based on at least a context class, wherein the context class contains information comprising the set of database access privileges, a connection context of a client, a command context of the client, a transaction context of the client, a pipe context of the client, and a trigger context of the client;
separating the .NET managed code into an immutable part and a mutable;
exposing expose the context [[class]] object to the database management system
[[server]] through the utilization of an in-process provider, wherein the in-process provider keeps track of unmanaged data obtained from the database management system that is referenced from

the runtime environment + managed space and prevents access of the database management data unmanaged data outside a runtime environment managed execution frame; and
execute the expression encoded in the native query language executing the .NET
managed code in the database server based on the invocation context object and the separation
into immutable and mutable parts.

44. (Currently amended) The computer-readable instructions of claim 43, wherein context object exposing the invocation context further comprises exposing at least one of:
a command with a state execution context;
a transaction context associated with a command;
a path through which requests and results may be sent or received between the client and
the database management system server;
a trigger context, wherein the trigger results from an operation of the client; [[or]] and
a forward-only cursor on top of statement execution results.

45. (Canceled)

46. (Canceled)

47. (Canceled)

48. (Currently amended) The computer-readable storage medium instructions of claim 43,
wherein the in-process provider supports more than one pending executing command for a
connection of the client.